cumulated records will be valuable; microscopical examinations of interesting specimens found in frequently made autopsies will likewise add materially to the completeness of our clinical records.

By the appointment of a state expert in plumbing, the Commission in Lunacy is endeavoring to put this part of our state hospitals in first-class sanitary condition. The state of California is now more than ordinarily fortunate in having three distinguished medical men on this commission, each and every one of whom is intensely interested in providing the best possible sanitation for these permanent institutions. The medical officers of these hospitals feel that any reasonable measure pertaining to the welfare and more scientific treatment of the insane will receive intelligent special consideration at the hands of this Commission. On the other hand, the work we may do, will, we fully realize, be professionally criticized by this Commission, and sharp corrections administered when deserved. Given a good equipment and fair opportunity, the average man be he lay or professional will do his very best work under strong pressure. The State Commission in Lunacy will in due course of time furnish the equipment: it devolves upon the medical officers to utilize it for the betterment of the service.

MEDICAL INSPECTION OF SCHOOLS.*

EDWARD VON ADELUNG, M. D., Oakland.

MEDICAL inspection of school-children as a form of preventive medicine, has grown in importance in recent years, and now attracts the attention of all educators as well as of all officials whose duty it is to protect the community against disease. But medical inspection is no new idea. An efficient system can be found in Egypt which dates back 22 years, in Belgium for over 26 years, in France for 20 years. It has been in vogue for a long time in Switzerland, England, Germany, Russia, and Scotland. It was inaugurated in Japan in 1893. In the United States, it was first adopted in Boston in 1894 and Brookline soon followed Boston's example. In 1895 Chicago adopted it, and New York in 1897. Since then, many other cities have followed, including Philadelphia, Newton (Mass.), St. Louis, Fall River (Mass.), Washington (D. C.), Orange (N. J.), Jersey City, Asbury Park, Milwaukee, Minneapolis, Salt Lake City, Cleveland, Hartford (Conn.), Cambridge (Mass.), Providence (R. I.), and San Francisco.

But before going further, let me stop and give a general idea of what the system is. This is best accomplished by stating what is done and how it is done.

The inspector usually makes his morning visit to the school between 9 and 10, giving the teachers time to note who appear to be ill and to have them in the principal's office ready for the medical examination when the inspector arrives. The nature of the examinations, their thoroughness, etc., depends upon the desire of the special board controlling the system. The contagious diseases are always sought and when found, the principal fills out an appropriate blank to the parent and immediately sends the child home, to be excluded until cured. It is the duty of the inspector to notify the health department, if it is a notifiable disease.

If a non-transmissible disease is discovered a similar note is sent home with the child advising consultation with the family physician. In all cases it is the principal of the school who sends the child home, and who writes the notes. It should be impressed here that the system is one of *inspection* and has nothing to do with correcting the ills that it discovers. The inspector never gives medical advice, never prescribes. This duty is left to the family physician strictly. Cases of sore throat are swabbed by the inspector and exclusion depends on the laboratory report, unless the clinical symptoms are themselves sufficiently positive.

*Read before the California Public Health Association, October, 1904.

The duties of the inspector vary with the conditions under which he works. If he is giving his services gratuitously, they are naturally limited, usually to the detection of contagious diseases. If he is salaried, he usually does more, including inspections for physical deformities, defects of sight or hearing, nervous troubles, overwork, any serious disease, and in some cases he inspects the sanitary conditions about the school. If he devotes his whole time to his official duties his field of usefulness is wide and includes the functions of a deputy health officer in his district. He then follows sick children to their homes, superintends placarding, fumigation, quarantining, and in some cases investigates the cause of absences from school of all absentees, and thus becomes a kind of truant officer as well. But it is not at all necessary that a medical inspector's duties should include so much.

Usually, the inspectors are practicing physicians, their official salaries are small, and their duties are limited to discovering the transmissible and the more important non-transmissible diseases in the manner indicated. Should the occurrence of a number of cases of a contagious disease such as diphtheria threaten an epidemic, he then takes unusual measures. For example, he goes into the class-rooms and makes special inquiries and takes a number of throat cultures. Once each year special examinations may be made of eyes and ears of all pupils, and when advisable, inspection for vaccination scars is made.

In introducing such a system of inspection the question of cost is always brought up. Fortunately the cost is small. The time given each school by the inspector is usually but a few minutes, so that one inspector can visit several schools each morning.

The number of inspectors necessary in any given city depends somewhat on the location of the schools, but it should not be less than one inspector to each 1500 children. Boston inspectors have about 1400 children each.

Services are usually voluntary during the first year or two, and the salaries paid thereafter are about $200.00 a year. Wherever paid medical inspection has been tried, it has proven to be a sound financial investment; and instead of acting as a drain upon the public treasury, the reverse has been found to be the case. In New York City where inspection does not go beyond the detection of the contagious diseases, "it has more than saved an excess in the value of coffins for the potter's field, to far more than pay for the expert service."

Wherever the system has been in operation the cost has proven to be comparatively small, while in Milwaukee the Commission of Health stated that the expense seemed so infinitely small in comparison with the enormous amount of good resulting therefrom, that it seems utterly impossible for any person to raise objections on this account. The sentiments of the writer are identical with those of the Milwaukee Commission of Health. The incredulous sometimes assert that the present conditions are satisfactory. The children seem to be doing well enough, they say, then why inject any new system into the already complicated educational mechanism?

The answer is a recital of facts: "The value of inspection shows itself along numerous lines affecting the condition not only of the child but also of the teacher, the parents, and the community at large. It has proven to be an important factor in the education of children and especially their parents in matters relating to personal and home hygiene and it has directed the attention of health boards and school boards to improvements and reforms which before had not attracted attention."

In quoting figures to show the need of medical inspection, the educational value of the system should not be forgotten. "In Boston from November 1, 1894, to October 31, 1896, out of 23,207 pupils examined there were 6571 cases of disease, and of these 5818

were too ill to be in school. In three months, in New York, 4183 children were excluded from school on account of contagious diseases, out of 63,812 examined." During a period of four months in Chicago, 1417 cases of diphtheria and 306 of scarlet fever were found in the public schools. Such figures speak volumes. Statistics of the efficiency of the system are now so abundant and so convincing and so generally accepted, that further quotations seem unnecessary.

It is a noticeable fact that in those schools where inspection has been introduced, the children are kept cleaner and their parents are more apt to keep ill children at home, thus giving earlier attention to the sick, and at the same time better protection against contagion to the well children in the schools.

After examining the most reliable reports, authorities have placed the number of children in attendance at school who are the subjects of some physical defect or illness which interferes with their work at not less than 10%, and 9% are too ill to study, and are in need of medical attention. I have no doubt that these figures apply to our California schools with the same force as to the eastern. This condition of affairs is too bad to be permitted to continue. It means that our children are not being properly cared for. Pitiful cases are frequently discovered by the inspectors. Whitcomb reports a boy of 13 who was still in the primary grade, utterly incapable of making headway in his studies. On investigation it was found that his hearing was defective and by giving him proper care his success was phenomenal, as he soon outstripped those who were believed to be far his superiors. Innumerable cases of defective hearing, of suppurating ears, of errors of refraction, of eye strain, and of other disorders of special cause are discovered by systematic inspection.

Medical inspection has been proven to protect against epidemics arising among school-children, to prevent the infection of others, and to prevent the spread of contagious diseases. Numerous instances could be cited to show how epidemics have been prevented or curtailed.

Dr. W. W. Keen said: "That it is the duty of the state not only to educate its children, but also to protect their health. You all know very well that at the hotel or boarding house, if a case of scarlet fever or diphtheria breaks out the place is deserted in 48 hours unless the child is taken away; and yet right in the midst of our schools, a case of scarlet fever may exist, or a case of diphtheria break out, and all the children in the school are exposed to it. This is not right and ought not to be." Other competent thinkers express themselves similarly. But it seems to me wholly unnecessary to adduce expert opinion to prove an every day truism. Who can deny that it is the duty of the state to protect from disease contracted at the school the children who are by law required to attend.

If the ultimate object of education is to make good citizens, then who can deny that the dissemination of the ordinary knowledge of the means of avoiding contagious diseases should be a part of such education. To me it seems a great wrong to gather children together four or five hours a day and subject them to the contagion of a fatal disease such as diphtheria or scarlet fever or tuberculosis or even to the milder diseases—measles, whooping cough, chickenpox and the parasitic skin diseases. In 1900 I examined the children in one of the large schools of Oakland and I was surprised to find a large number suffering from diseases that interfered with their progress, some too sick to remain in school, and a very large number affected with transmissible parasitic and skin diseases. The need of medical supervision in the schools is beyond question. That it is the right and duty of the municipality to provide for the necessary care of the children's health is a truism.

That medical inspection produces valuable results is amply proven. That its cost is inconsiderable is demonstrated. That medical inspection will one day be an integral part of all educational departments seems inevitable. Experience shows fully that the system does not, as some have supposed, interfere with the family physician, or with the duties of the teacher, or with discipline, or in any way with the school routine. These objections have all been proven groundless by the experience in the cities where medical inspection is practiced. On the contrary, it requires only a short trial to eliminate all objections and to win the commendation not only of the school department, but of the pupils, the teachers, the parents, and the family physicians.

[Note.—Dr. Lewis S. Somer's most excellent prize essay, "The Medical Inspection of Schools: A Problem in Preventive Medicine," has been used freely in this paper.]

MY EXPERIENCE WITH MEDULLARY NARCOSIS.*

By GEO. W. J. FOWLER, M. D., Santa Clara.

ANESTHETICS have interested our profession since the discovery of ether, chloroform and nitrous oxide. Ours is not a fixed science. It is one that is ever improving in every branch and detail; and we should always be willing to investigate new theories and remedies, such as the one under discussion this evening.

The use of cocaine as an anesthetic introduced into the subarachnoid space was first brought to our notice by Dr. J. Leonard Corning of New York, who first used it in 1884. He was followed by Bier, Guffier and others. Since that time it has been used by many surgeons for operations below and above the diaphragm, and by many of them discarded, owing no doubt to the methods employed. Some dissolved the cocaine and then introduced it into the subarachnoid space; others removed a portion of the fluid from the space and replaced an equal amount of solution containing cocaine. These methods did not prove satisfactory, as they invariably produced alarming symptoms, such as severe headache, vomiting, chills, etc., owing perhaps to the difference in the specific gravity and temperature of the normal fluid and the one the operator introduced.

Other operators have persevered and by perfecting the method of preparation and of administration of the cocaine, they have finally succeeded in placing spinal anesthesia on a par, if not superior to ether or chloroform. I have used this method in 69 cases, covering a period of over two years. Eleven above and fifty-eight below the diaphragm, and I am entirely pleased with it. I have never been obliged to giver a second injection, or use another anesthetic on the same patient.

A few of my patients were naturally very nervous, but by speaking kindly to them, and assuring them that everything was all right, they complained no more, and after the operations were completed they assured me that they imagined the pain. Sometimes they mistake tactile sensation for pain. I am very familiar with ether and chloroform and the symptoms produced when administered. The appearance of the patient during the time and after he has passed through a serious operation is something that we cannot easily forget:

1. The unconscious condition during the operation, and the time in regaining consciousness afterward.
2. The interruption or perhaps the complete arrest of respiration, requiring artificial respiration.
3. The weak condition of the pulse, in many cases requiring strong stimulants.
4. The profane language and fighting of the patient.
5. The prolonged vomiting during and after the operation.
6. The shock.

*Read before the Santa Clara County Medical Society, October, 1904.